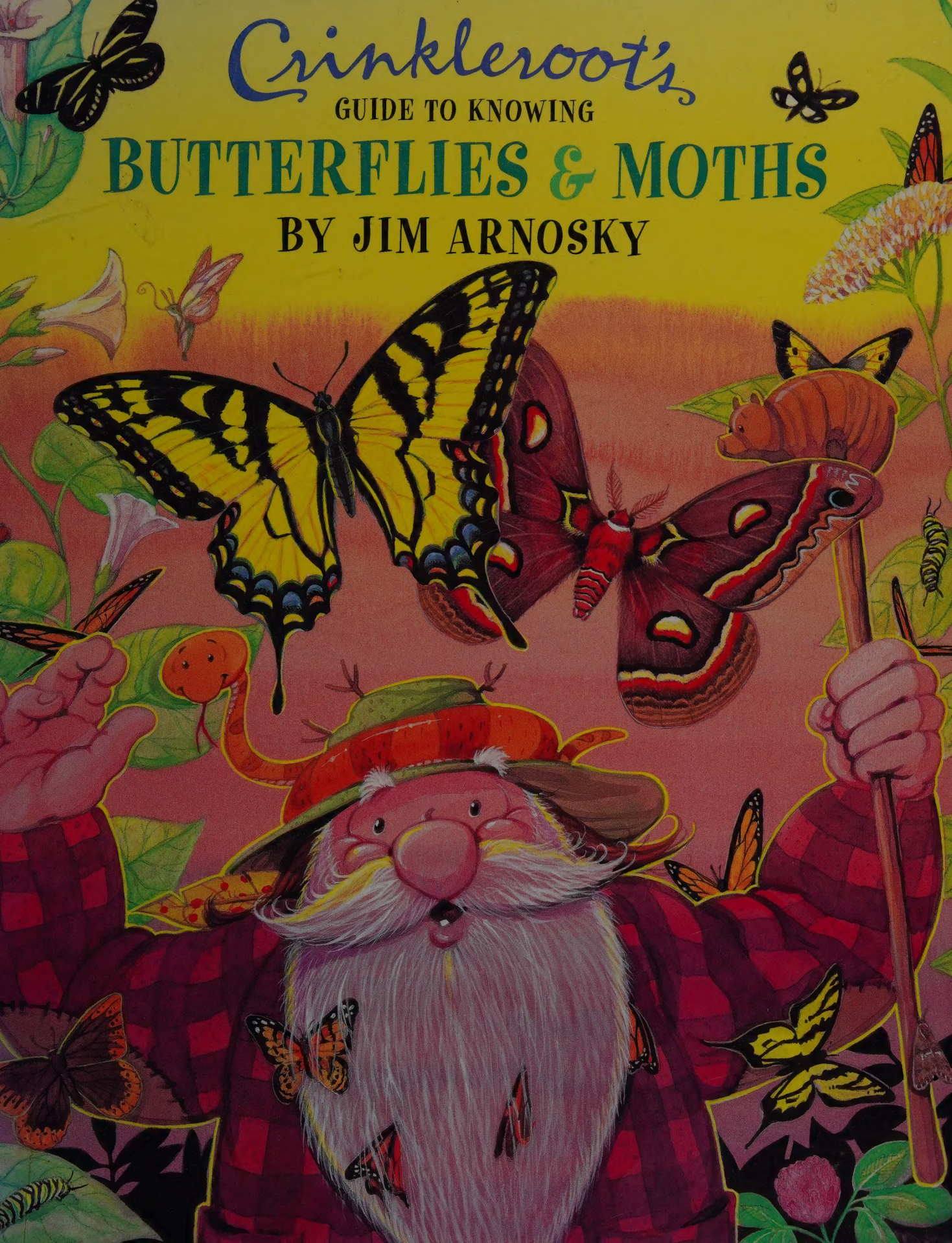


Crinkleroot's

GUIDE TO KNOWING

BUTTERFLIES & MOTHS

BY JIM ARNOSKY



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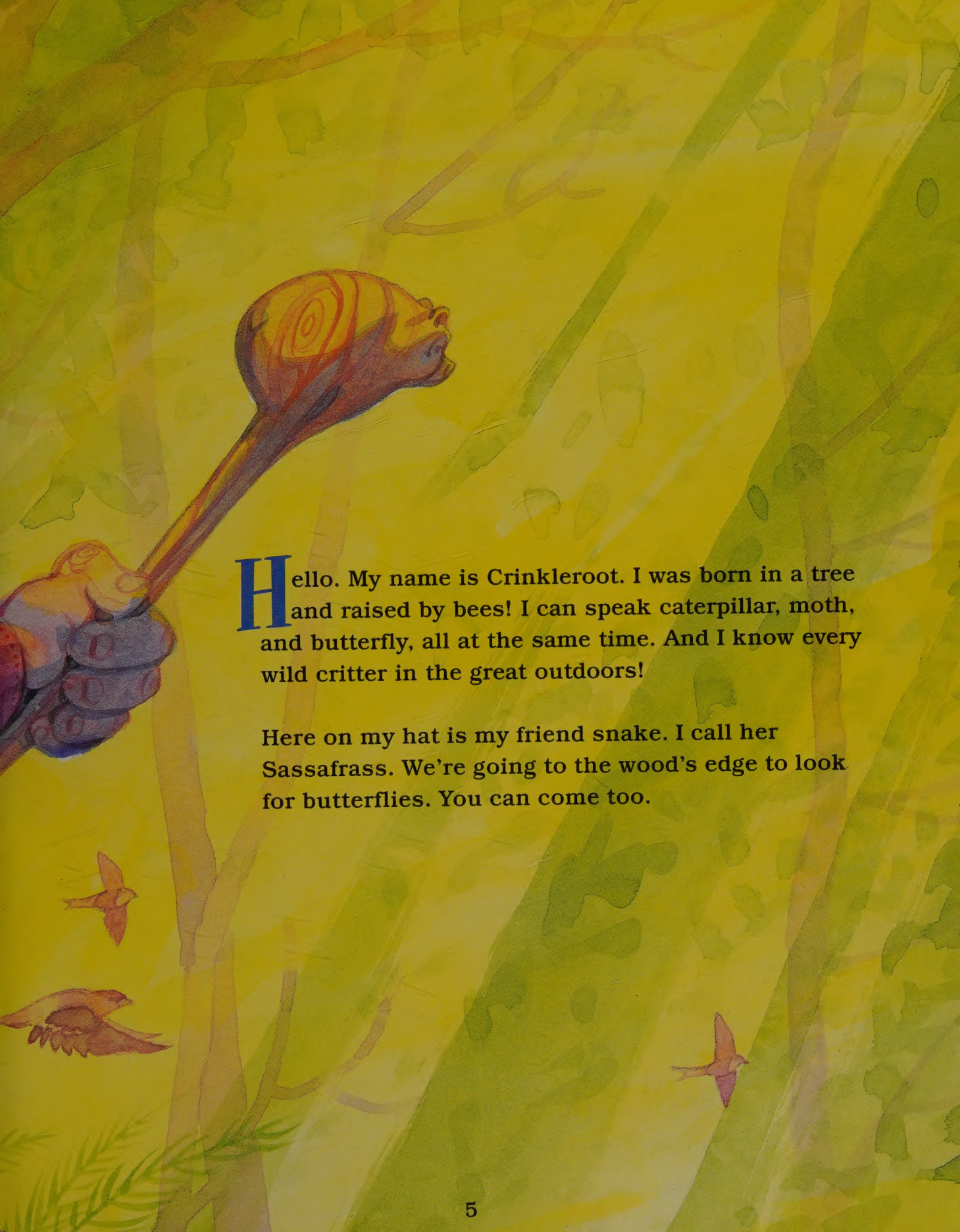
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FOR RODNEY, MICHELLE, AND DARREN







Hello. My name is Crinkleroot. I was born in a tree
and raised by bees! I can speak caterpillar, moth,
and butterfly, all at the same time. And I know every
wild critter in the great outdoors!

Here on my hat is my friend snake. I call her
Sassafrass. We're going to the wood's edge to look
for butterflies. You can come too.



Butterflies and their close relatives, moths, are among the most numerous of all insects.

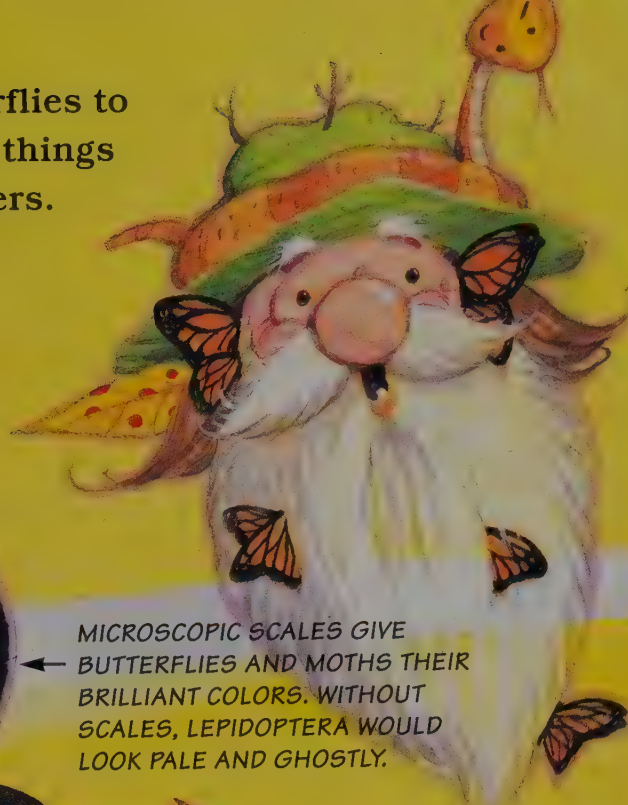
Hmm. . . . Where could they be? This meadow is usually all aflutter with butterflies.

While we're waiting for some butterflies to show up, why don't I tell you some things you should know about these critters.



BUTTERFLIES AND MOTHS BELONG TO THE ORDER OF INSECTS KNOWN AS LEPIDOPTERA.

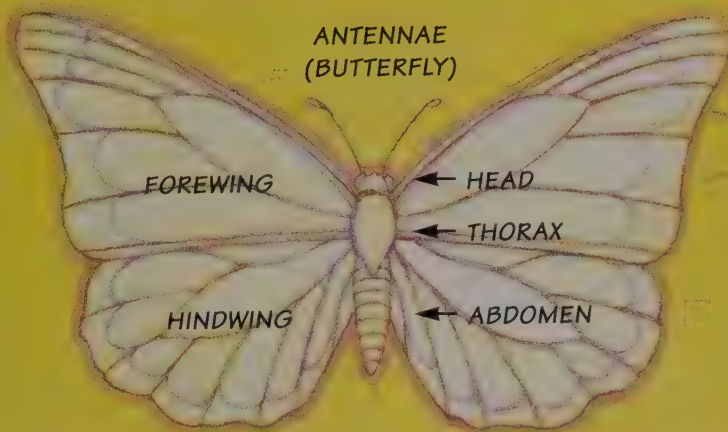
LEPIDOPTERA MEANS "SCALED WINGS."



MICROSCOPIC SCALES GIVE BUTTERFLIES AND MOTHS THEIR BRILLIANT COLORS. WITHOUT SCALES, LEPIDOPTERA WOULD LOOK PALE AND GHOSTLY.

THE DELICATE SCALES RUB OFF LIKE POWDER.

BUTTERFLIES AND MOTHS HAVE THE SAME BASIC ANATOMY.



MOTH ANTENNAE ARE FEATHERY.

WHAT IS THE EASIEST WAY TO TELL A BUTTERFLY FROM A MOTH?

BUTTERFLIES REST WITH WINGS UPRIGHT.



MOTHS REST WITH WINGS FOLDED DOWN.





Hoo-hoo-hee! I was so busy talking, I didn't notice the monarch butterflies right here in my beard!

Monarchs are the best known of all butterflies. They are easily recognized by their bold pattern of orange and black.



MONARCH BUTTERFLY

The viceroy butterfly is the only other butterfly that resembles the monarch.



VICEROY BUTTERFLY



NOTE: THROUGHOUT THE BOOK, ALL BUTTERFLIES, MOTHS, AND CATERPILLARS ARE SHOWN ACTUAL SIZE.

Monarchs and viceroys have bold yet simple patterns that make them easy to recognize. Here are more butterflies with simple unmistakable patterns.





Follow me! I think I see a swallowtail butterfly
just over the knoll. Hurry!



ZEBRA
SWALLOWTAIL

It's fun to run after butterflies. But to get really close, you have to approach slowly. Let's get a good close-up look at these swallowtail butterflies.



BLACK
SWALLOWTAIL



TIGER
SWALLOWTAIL

Swallowtails are my favorite butterflies. You can recognize them by their long, swallowlike tails.



SWALLOWTAIL ON
QUEEN ANNE'S LACE

If you wait until a butterfly lands on a flower and begins to feed, you can get quite close. When a butterfly is sipping flower nectar, it pays little attention to anything else. This swallowtail is sipping from a wildflower called Queen Anne's lace.

Butterflies and moths sip flower nectar and water through a long hollow tube called a proboscis.

Here are three other common wildflowers whose nectar butterflies seek out:



CLOVER

MILKWEED

PROBOSCIS

A PROBOSCIS CAN BE UNFURLED TO REACH NECTAR DEEP INSIDE ANY FLOWER.

THISTLE



NOTE: THISTLE PLANTS ARE PRICKLY ALL OVER. DO NOT TOUCH!

While you're looking for butterflies on a plant's flowers, look for butterfly caterpillars on the plant leaves. Every butterfly begins its life as a caterpillar.

The change from caterpillar to butterfly is called metamorphosis.

THE LIFE CYCLE OF A BUTTERFLY

MONARCH EGG
(12X ITS ACTUAL SIZE)



A BUTTERFLY
BEGINS LIFE
IN THE EGG.



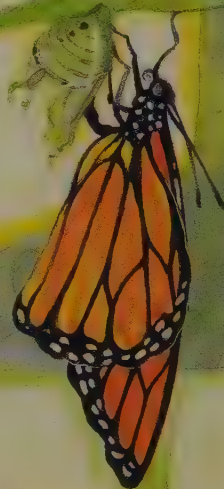
MONARCH CATERPILLAR

THE EGG HATCHES INTO A
CATERPILLAR (LARVA). THE
CATERPILLAR GROWS RAPIDLY
FEEDING ON GREEN LEAVES.

AFTER IT HAS GROWN ALL IT CAN,
THE CATERPILLAR CURLS UP AND
FORMS A HARD-SHELLED CASE
AROUND ITSELF CALLED A
CHRYsalis.



INSIDE THE CHRYsalis, THE
CATERPILLAR CHANGES INTO A
BUTTERFLY. WHEN THE TIME IS
RIGHT, THE BUTTERFLY BREAKS
OUT, UNFURLS ITS WINGS, AND
FLIES AWAY.



HERE ARE THE CATERPILLARS OF
THREE BUTTERFLIES YOU KNOW:



CALIFORNIA
SISTER



BLACK SWALLOWTAIL



ZEBRA
LONGWING



Not all butterflies are big and boldly patterned. Many butterflies are small and colored in soft pastel shades. Some are yellow or blue. Some are copper colored. And some butterflies are white.





ORANGE-BORDERED
BLUE



ACADIAN
HAIRSTREAK



CLOUDLESS SULPHUR



PURPLISH
COPPER

HERE ARE EIGHT LOVELY LITTLE
PASTEL-COLORED BUTTERFLIES
FOR YOU TO LOOK FOR:



CABBAGE WHITE



COMMON BLUE



ALFALFA BUTTERFLY



DOGFACE BUTTERFLY



Aha! Here are four butterflies we haven't seen yet.
These have mottled or checkered color patterns.

Most butterflies can be found in sunny, open places,
but a few species prefer the woods. Of the woodland
butterflies, elfins and satyrs are my favorite.



CHECKERSPOT



PAINTED LADY



CHECKERED SKIPPER



CRESCENTSPOT



You have to look thoroughly to see woodland butterflies. Most are colored in browns and grays—just like the woods.

BROWN ELF

WOOD SATYR



NOTE HOW WOODLAND BUTTERFLIES BLEND INTO THEIR SURROUNDINGS.

Butterflies are daytime fliers. Moths fly mostly at night.



AT NIGHT, BUTTERFLIES SLEEP CLINGING
TO THE UNDERSIDE OF LEAVES.

Nobody knows exactly why night-flying moths are so strongly attracted to light, but because they are, moths are the easiest insects to locate.



MAPLE SPANWORM
MOTH



DRIED LEAF MOTH



CUTWORM MOTH



GYPSY
MOTH

DURING THE DAY,
MOTHS SLEEP ON
TREES OR BRUSH,
CAMOUFLAGED
AGAINST BARK.

Just turn on your porch light and dozens of moths will find you! You don't have to go any farther than your own doorstep.

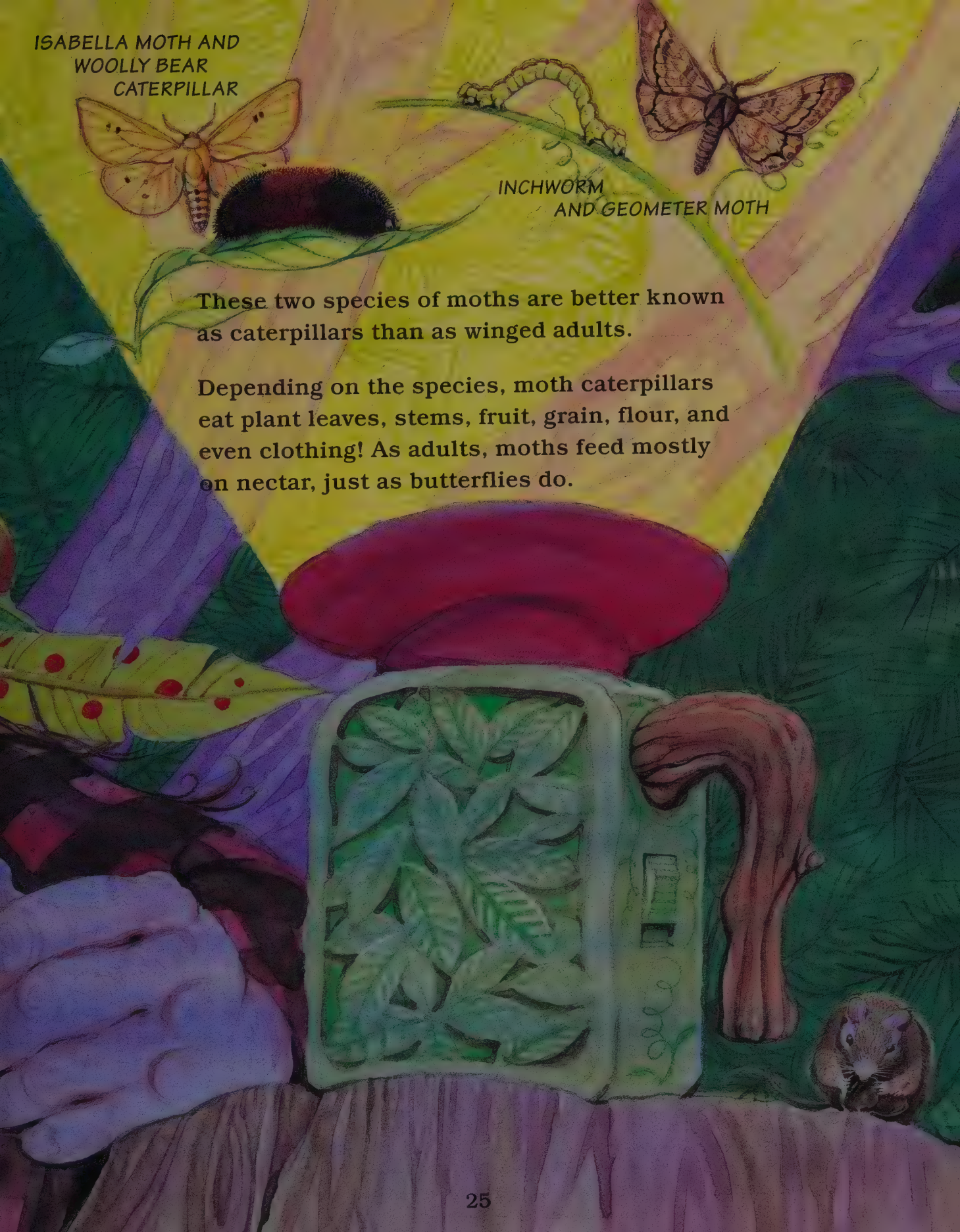


GYPSY MOTH EGGS
IN SILKEN SAC

CATERPILLAR

PUPAL CASE (COCOON)
AND EMERGING WINGED
GYPSY MOTH

Like butterflies,
moths begin life in
the egg and hatch
as caterpillars.



ISABELLA MOTH AND
WOOLLY BEAR
CATERPILLAR

INCHWORM
AND GEOMETER MOTH

These two species of moths are better known as caterpillars than as winged adults.

Depending on the species, moth caterpillars eat plant leaves, stems, fruit, grain, flour, and even clothing! As adults, moths feed mostly on nectar, just as butterflies do.

Some moths are well known simply because of their large size. Here are five truly giant moths that may fly to your porch light:



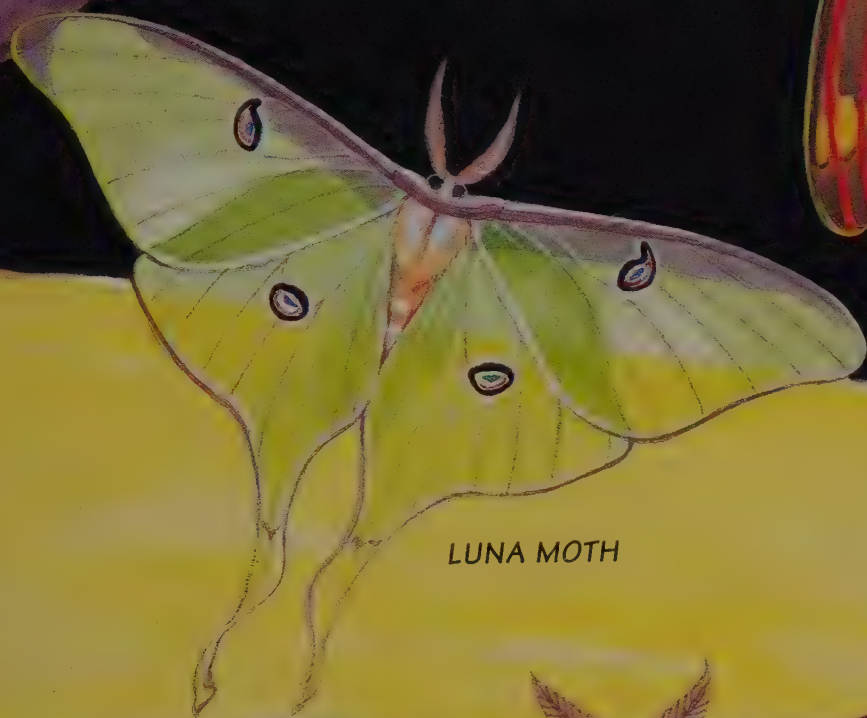
POLYPHEMUS MOTH

BIG POPLAR SPHINX MOTH

These moths are so big that at first sight they might be a little scary. But don't be afraid—they're harmless.



REGAL MOTH

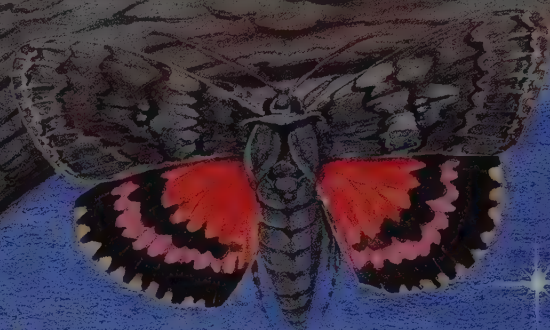


LUNA MOTH



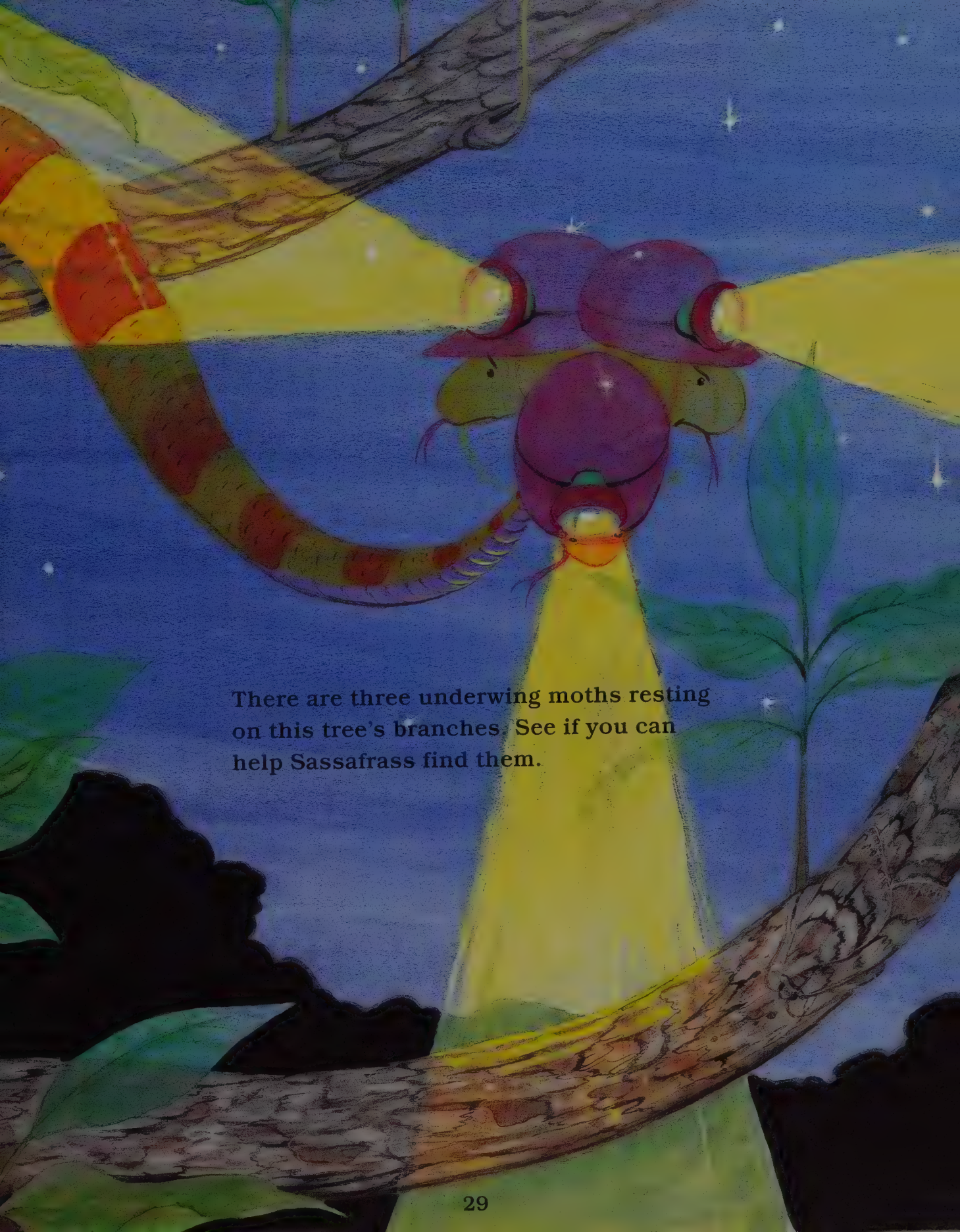
CECROPIA MOTH

My favorite moths are called underwings. At rest, underwing moths are almost impossible to find. Their closed forewings blend perfectly with the bark of trees. But when they spread their wings, the brilliant colors of their underwings are revealed.



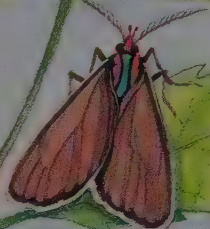
SWEETHEART UNDERWING





There are three underwing moths resting
on this tree's branches. See if you can
help Sassafrass find them.

Not all moths are night fliers. Three day-flying moths for you to keep an eye out for are the forester, ctenucha (pronounced te-NOO-cha), and hummingbird moth.



CTENUCHA (PRONOUNCED Te-NOO-cha) MOTH



FORESTER MOTH



HUMMINGBIRD MOTH



ACTUAL HUMMINGBIRD

It's morning, and the butterflies are awake. This has been a long walk. I should be tired, but I'm full of energy. I think I'll follow this old stone wall to see where it leads. Meanwhile, I hope you've enjoyed learning a little about the fascinating group of insects known as Lepidoptera. See you soon. Wave good-bye, Sassafrass. Bye!





HERE ARE MORE OF

Crinkleroot's

NATURE GUIDES FOR YOU TO ENJOY:

Crinkleroot's Guide to Knowing the Birds

Crinkleroot's Guide to Knowing the Trees

Crinkleroot's Guide to Walking in Wild Places

Crinkleroot's 25 Mammals Every Child Should Know

Crinkleroot's 25 More Animals Every Child Should Know

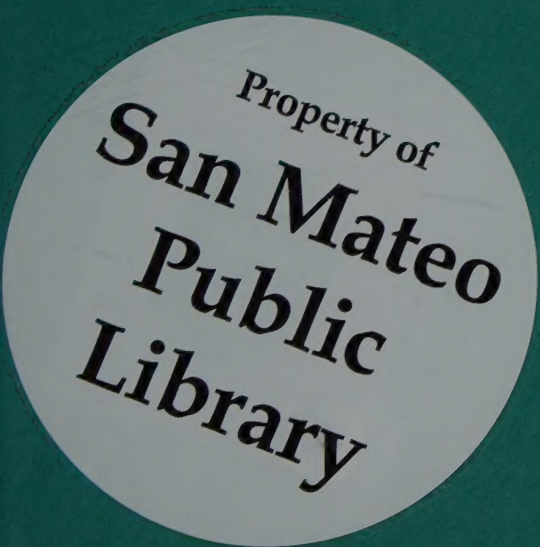
Crinkleroot's 25 Birds Every Child Should Know

Crinkleroot's 25 Fish Every Child Should Know

I Was Born in a Tree and Raised by Bees

Crinkleroot's Book of Animal Tracking





\$13.00 US

\$17.50 CAN

Ages 4-10

Come along to the wood's edge to learn about butterflies and moths with that folksy, friendly woodsman known as Crinkleroot.

With text complemented by actual size watercolor paintings of butterflies and moths, Crinkleroot teaches basics like their anatomy, life cycles, and feeding habits, and even lets readers in on little-known facts such as the easiest way to tell a butterfly from a moth and where these critters sleep.



JIM ARNOSKY has won the Eva L. Gordon Award for his outstanding children's science literature and the Christopher Award for his classic work, *Drawing from Nature*. As *School Library Journal* says, "Nobody captures nature's whims and wiles better than Jim Arnosky." He lives in South Ryegate, Vermont.

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